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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,054	08/20/2003	Michael Joseph Stimiman	50103-565	5143

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MCDERMOTT, WILL & EMERY
600 13th Street, N.W.
Washington, DC 20005-3096

EXAMINER

MACARTHUR, SYLVIA

ART UNIT	PAPER NUMBER
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1763

MAIL DATE	DELIVERY MODE
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05/10/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/644,054

Applicant(s)

STIRNIMAN ET AL.

Examiner

Sylvia R. MacArthur

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/9/2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 16-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/9/2007 has been entered.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1-15 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-10 of Stirniman et al (U.S. Patent No. 6,613,151) in view of Dick et al (US 5,904,958).

Although the conflicting claims are not identical, they are not patentably distinct from each other because the patent to Stirniman et al teaches a chamber having an interior space, a

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substrate loader/unloader with at least one disk-shaped substrate comprising a magnetic or magneto optical data/information storage and retrieval medium. The patent further teaches an elongated lubricant vapor source and a substrate transporter/conveyor.

Additionally, the patent claims nozzle slits (openings), but fails to teach the plugs that fit into the plurality of nozzles.

Dick et al teaches an adjustable nozzle for evaporation of organic monomers. Dick et al further teaches an evaporator 26 (vapor source). The organic monomer enters the evaporation chamber through an inlet 46. The nozzle plate 50 is bolted to the nozzle housing 28 using bolts 58. The motivation to modify the apparatus of Stirniman et al to utilize the evaporator of Dick et al is that the nozzle features a plurality of plugs (bolts) spaced along the width of the nozzle offering better control of deposition material by adjusting the cross direction coating uniformity, see the abstract. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to modify the apparatus of the Stirniman et al with plugs of Dick et al in order to control the distribution of vapor source. The plugs of Dick et al are formed in a linear and rectangular array, see Figs. 2 and 4. Regarding the plugs having a pattern wherein the plugs at the outer edges have a smaller diameter than the plugs adjacent to the middle of the vapor source, Figs. 3 and 4 shows plugs of varying sizes. The arrangement of the plugs and are interpreted as a matter of optimization without a showing of criticality of this arrangement, shape, or rearrangement of the plugs. The courts have held that without a showing of criticality of the shape, arrangement of a structure, the optimization of such is a prima facie case of obviousness, see *In re Japsike*, *In re Dailey et al*.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Helling et al (US 5,882,415) in view of Dick et al (US 5,904,958).

Helling et al teaches an electron beam continuous process vaporization installation for thermally high stressed substrates.

Regarding claims 1 and 13: Helling et al teaches an apparatus for vapor depositing a uniform thickness thin film of a lubricant on at least one surface of a substrate, comprising:

(a) a chamber 6 having an interior space; (b) a substrate loader/unloader (carrier 12) for supplying said interior space with at least one substrate and for withdrawing the substrate from said interior space, said disk-shaped substrate.

Note that the apparatus is what it is and not what it does, the type of substrate used does not structurally limit the apparatus and is not given patentable weight. Furthermore, the inclusion of material or an article worked upon by a structure being claimed does not impart patentability to the claims. In re Young, 75 F. 2d 966, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). (d) a substrate transporter/conveyor (rollers 13) for continuously moving at least one past said stream of lubricant vapor from said at least one lubricant vapor source for depositing on at least one surface thereof a uniform thickness thin film of lubricant.

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In essence, Helling et al teaches a thin film deposition apparatus by using a lock chamber 1, a heating chamber 3, and a vaporization chamber 6 wherein the vaporization chamber 6 comprises vaporizer crucibles (with vapor sources) and at least one electron gun 10 (electron beam source).

Helling et al teaches a vapor source (vaporizer crucibles 7). The limitation that the vapor source is specifically a *lubricant vapor source* is interpreted as a matter of an intended use. The apparatus of Helling et al comprises a crucible, which can be used to vaporize the intended lubricant material as an apparatus is what it is and not what it does.

Though Helling et al does teach heating chamber 3, Helling et al fails to teach a plurality of primary plugs as recited in the present invention.

Dick et al teaches an adjustable nozzle for evaporation or organic monomers. Dick et al further teaches an evaporator 26 (vapor source). The organic monomer enters the evaporation chamber through an inlet 46. The nozzle plate 50 is bolted to the nozzle housing 28 using bolts 58. The motivation to modify the apparatus of Helling et al to utilize the evaporator of Dick et al is that the nozzle features a plurality of plugs (bolts) spaced along the width of the nozzle offering better control of deposition material. The plugs of Dick et al are formed in a linear and rectangular array, see Figs. 2 and 4. Regarding the plugs having a pattern wherein the plugs at the outer edges have a smaller diameter than the plugs adjacent to the middle of the vapor source, Figs. 3 and 4 shows plugs of varying sizes. The arrangement of the plugs and are interpreted as a matter of optimization without a showing of criticality of this arrangement, shape, or rearrangement of the plugs. The courts have held that without a showing of criticality

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of the shape, arrangement of a structure, the optimization of such is a prima facie case of obviousness, see *In re Japsike*, *In re Dailey et al.*

Analogous to *Helling et al*, *Dick et al* teaches a vapor source and a heating chamber 26, see col. 4 lines 18-39. *Dick et al* further teaches the use of plugs to introduce the vapor source into the heated chamber. The motivation to modify the apparatus of *Helling et al* to utilize the evaporator of *Dick et al* is that the nozzle features a plurality of plugs (bolts) spaced along the width of the nozzle in order to adjust the cross direction coating uniformity, see the abstract.

Regarding claim 2: The apparatus according to claim 1, wherein said chamber (a) is adapted for maintaining said interior space at a pressure below atmospheric pressure, see abstract of *Dick et al*.

Regarding claim 3: The apparatus according to claim 1, wherein said substrate loader/unloader (b) is adapted for providing cooling/condensation (see col. 3 lines 50-67 of *Dick et al*) of said lubricant vapor for preventing escape of said lubricant vapor from said interior space of said chamber.

Regarding claim 4: The apparatus of *Helling et al* , wherein said substrate loader/unloader (b) is adapted for supplying and withdrawing at least one disc- shaped substrate having a pair of opposed surfaces and said substrate transporter/conveyor (d) is adapted for mounting or gripping at least one disc-shaped substrate, see series of rollers 13 which are arranged on both sides of the carriage col. 4 lines 23-32.

Regarding claim 5: The apparatus according to claim 4, wherein said at least one lubricant vapor source (c) is elongated, with a length greater than an outer diameter of said disc-shaped substrate, see col. 4 lines 18-40 of *Dick et al*.

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Regarding claim 6: The apparatus lubricant vapor source (c) according to claim 5, wherein said elongated comprises a closed heated chamber for accommodating liquid lubricant therein and serving as a lubricant vaporizer, said closed heated chamber fluidly communicating with at least a plurality of primary plugs for supplying said stream of lubricant vapor, see col. 4 of Dick et al.

Regarding claim 7: The apparatus according to claim 6, wherein said elongated vapor source (c) further comprises a plurality of secondary plugs for increased collimation of said stream of lubricant vapor, see Figs 2,4, and 6 of Dick et al.

Regarding claim 8: The apparatus according to claim 6, further comprising a spaced apart plurality of said elongated lubricant vapor sources (c) arranged along a path of transport conveyance of said at least one disc-shaped substrate within said interior space of said chamber, see crucibles 7 in Fig.1 of Helling et al.

Regarding claim 9: An apparatus according to claim 1, wherein said lubricant vapor source (c) comprises at least a plurality of threaded holes into which said plugs are screwed therein, see Figs. 2,4, and 6 of Dick et al.

Regarding claim 10: The apparatus according to claim 9, wherein each of said plugs comprises a drilled hole, said drilled hole substantially extending the length of the plug's interior, see Figs. 2,4, and 6 of Dick et al.

Regarding claim 11: The apparatus according to claim 10, wherein the drilled hole of each plug can have substantially the same or different diameter from one another, see Figs. 2,4, and 6 of Dick et al.

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Regarding claim 12: The apparatus according to claim 10, wherein the plugs form a pattern in the form of a linear array, a diagonal array, or a rectangular array see Figs. 2,4, and 6 of Dick et al.

Regarding claim 15: The apparatus according to claim 8, wherein said chamber (a) is an elongated, rectangular box-shaped chamber having a pair of longitudinally extending front and rear walls; said substrate loader/unloader (b) comprises a substrate load lock chamber connected to said chamber at a first end of said front wall and a substrate exit lock chamber connected to said chamber at a second end of said front wall; each of said spaced-apart plurality of elongated lubricant vapor sources (c) extends transversely across said front wall in the space between said load lock and said exit chambers; and said substrate transporter/conveyor (d) is adapted to move said at least one disc- shaped substrate in a linear path past each of the transversely extending, elongated lubricant vapor sources, see Helling et al, Fig. 1.

4. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hedgcoth (US 6,036,824) in view of Dick et al (US 5,904,958).

Hedgcoth teaches a method and apparatus making a magnetic recording disk.

Regarding claims 1 and 13: Hedgcoth teaches an apparatus for vapor depositing a uniform thickness thin film of a lubricant on at least one surface of a substrate, comprising:

(a) a chamber 14 having an interior space; (b) a substrate loader/unloader (disk carrier 6) for supplying said interior space with at least one substrate and for withdrawing at least one disk-shaped substrate from said interior space, said disk-shaped substrate. (d) a substrate transporter/conveyor (load table 4) for continuously moving at least one disk-shaped substrate

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past said stream of lubricant vapor from said at least one lubricant vapor source for depositing on at least one surface thereof a uniform thickness thin film of lubricant.

Though Hedgcoth does teach a disk shaped substrate, the examiner recognizes that the inclusion of material or an article worked upon by a structure being claimed does not impart patentability to the claims. In re Young, 75 F. 2d 966, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Furthermore, note that the apparatus is what it is and not what it does, the type of substrate used does not structurally limit the apparatus and is not given patentable weight.

Hedgcoth teaches the production of a thin film using vapor sources 42. Plasma is initiated over the sources to commence the deposition onto the substrates see col. 8 lines 1-44. Though Hedgcoth teaches vapor sources 42, the limitation that the vapor source is specifically a *lubricant vapor source* is interpreted as a matter of an intended use. The apparatus of Hedgcoth comprises a nucleating targets according to col. 4 lines 53-67 which can be used to vaporize the intended lubricant material as an apparatus is what it is and not what it does.

Hedgcoth fails to teach (c) at least a plurality of primary plugs for supplying a stream of vapor.

Dick et al teaches an adjustable nozzle for evaporation or organic monomers. Dick et al further teaches an evaporator 26 (vapor source). The organic monomer enters the evaporation chamber through an inlet 46. The nozzle plate 50 is bolted to the nozzle housing 28 using bolts 58. The motivation to modify the apparatus of Hedgcoth to utilize the evaporator of Dick et al is that the nozzle features a plurality of plugs (bolts) spaced along the width of the nozzle offering better control of deposition material. The plugs of Dick et al are formed in a

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linear and rectangular array, see Figs. 2 and 4. Regarding the plugs having a pattern wherein the plugs at the outer edges have a smaller diameter than the plugs adjacent to the middle of the vapor source, Figs. 3 and 4 shows plugs of varying sizes. The arrangement of the plugs and are interpreted as a matter of optimization without a showing of criticality of this arrangement, shape, or rearrangement of the plugs. The courts have held that without a showing of criticality of the shape, arrangement of a structure, the optimization of such is a prima facie case of obviousness, see *In re Japsike*, *In re Dailey et al.*

Regarding claim 2: The apparatus according to claim 1, wherein said chamber (a) is adapted for maintaining said interior space at a pressure below atmospheric pressure, see abstract of Dick et al.

Regarding claim 3: The apparatus according to claim 1, wherein said substrate loader/unloader (b) is adapted for providing cooling/condensation (see col. 3 lines 50-67 of Dick et al) of said lubricant vapor for preventing escape of said lubricant vapor from said interior space of said chamber.

Regarding claim 4: The apparatus of Hedgcoth , wherein said substrate loader/unloader (carrier 6) (b) is adapted for supplying and withdrawing at least one disc-shaped substrate having a pair of opposed surfaces and said substrate transporter/conveyor(load table 4) (d) is adapted for mounting or gripping at least one disc- shaped substrate, see series of rollers which are arranged on both sides of the load table of Fig. 1.

Regarding claim 5: The apparatus according to claim 4, wherein said at least one lubricant vapor source (c) is elongated, with a length greater than an outer diameter of said disc-shaped substrate, see col. 4 lines 18-40 of Dick et al.

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Regarding claim 6: The apparatus lubricant vapor source (c) according to claim 5, wherein said elongated comprises a closed heated chamber for accommodating liquid lubricant therein and serving as a lubricant vaporizer, said closed heated chamber fluidly communicating with at least a plurality of primary plugs for supplying said stream of lubricant vapor, see col. 4 of Dick et al.

Regarding claim 7: The apparatus according to claim 6, wherein said elongated vapor source (c) further comprises a plurality of secondary plugs for increased collimation of said stream of lubricant vapor, see Figs 2,4, and 6 of Dick et al.

Regarding claim 8: The apparatus according to claim 6, further comprising a spaced apart plurality of said elongated lubricant vapor sources (c) arranged along a path of transport conveyance of said at least one disc-shaped substrate within said interior space of said chamber, see sources 42.

Regarding claim 9: An apparatus according to claim 1, wherein said lubricant vapor source (c) comprises at least a plurality of threaded holes into which said plugs are screwed therein, see Figs. 2,4, and 6 of Dick et al.

Regarding claim 10: The apparatus according to claim 9, wherein each of said plugs comprises a drilled hole, said drilled hole substantially extending the length of the plug's interior, see Figs. 2,4, and 6 of Dick et al.

Regarding claim 11: The apparatus according to claim 10, wherein the drilled hole of each plug can have substantially the same or different diameter from one another, see Figs. 2,4, and 6 of Dick et al.

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Regarding claim 12: The apparatus according to claim 10, wherein the plugs form a pattern in the form of a linear array, a diagonal array, or a rectangular array see Figs. 2,4, and 6 of Dick et al.

Regarding claim 14: The apparatus according to claim 13, wherein said spaced-apart plurality of lubricant vapor sources (c) comprises a second plurality of radially extending, elongated lubricant vapor sources for depositing a thin film of lubricant on a second one of said pair of opposed surfaces of said disc-shaped substrate, see Fig. 1 of Hedgcoth, sources 42.

Regarding claim 15: The apparatus according to claim 8, wherein said chamber (a) is an elongated, rectangular box-shaped chamber having a pair of longitudinally extending front and rear walls; said substrate loader/unloader (b) comprises a substrate load lock chamber connected to said chamber at a first end of said front wall and a substrate exit lock chamber connected to said chamber at a second end of said front wall; each of said spaced-apart plurality of elongated lubricant vapor sources (c) extends transversely across said front wall in the space between said load lock and said exit chambers; and said substrate transporter/conveyor (d) is adapted to move said at least one disc- shaped substrate in a linear path past each of the transversely extending, elongated lubricant vapor sources, see Hedgcoth, Fig. 1.

Response to Arguments

5. Applicants arguments regarding claims 1-15 have been considered but are not persuasive. Namely, applicant argues (seen below in italics with the rebuttal attached):

A) *There is a lack of motivation to combine the teachings of Helling et al and Dick et al.*

Recall both Helling et al and Dick et al teach the vapor deposition of thin films wherein the production of the vapor comprises a heated with a vapor source. Helling et al teach a

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broad heating chamber and fail to detail how the vapor source is introduced to the heating chamber. Dick et al teaches the use of a plurality of plugs that are used to control the uniformity of the inlet vapor by the adjustment of the push/pull bolts.

B) There is a lack of motivation to combine the teachings of Hedgcoth and Dick et al.

Hedgcoth teaches the production of a thin film using vapor sources 42. Hedgcoth fails to detail how the vapor source is introduced to the heating chamber. Dick et al teaches the use of a plurality of plugs that are used to control the uniformity of the inlet vapor by the adjustment of the push/pull bolts.

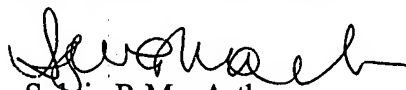
C) Hedgcoth and Dick are not within the same field of endeavor. Both Hedgcoth and Dick et al teach thin film production using vapor sources.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sylvia R. MacArthur whose telephone number is 571-272-1438. The examiner can normally be reached on M-F during the hours of 8:30 a.m. and 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Sylvia R MacArthur
Patent Examiner
Art Unit 1763

April 27, 2007